MONSANTO COMPANY

Material Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Outrider® Herbicide

EPA Reg. No.
524-500
Product use
Herbicide
Chemical name
Not applicable.
Synonyms
None.
Company
MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167
Telephone: 800-332-3111, **Fax:** 314-694-5557
Emergency numbers
FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient
N-[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-2-(ethylsulfonyl)imidazo[1,2-a]pyridine-3-sulfonamide; {Sulfosulfuron}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Sulfosulfuron	141776-32-1	75
Other ingredients		25

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

OSHA Status
This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Emergency overview
Appearance and odour (colour/form/odour): Whitish / Granules, (free-flowing)

CAUTION!
CAUSES MODERATE EYE IRRITATION

Potential health effects
Likely routes of exposure
Skin contact, eye contact
Eye contact, short term

May cause temporary eye irritation.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Potential other effects

Risk of dust explosion.

Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST AID MEASURES

Eye contact

If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

Skin contact

Wash affected skin with plenty of water.
Use soap if available.
Take off contaminated clothing, wristwatch, jewellery.
Wash clothes and clean shoes before re-use.

Inhalation

Remove to fresh air.

Ingestion

Remove particles from mouth.
Rinse mouth thoroughly with water.
Immediately offer water to drink.
Do NOT induce vomiting unless directed by medical personnel.
If symptoms occur, get medical attention.

5. FIRE-FIGHTING MEASURES

Flash point

Not applicable.

Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO2)

Unusual fire and explosion hazards

If this material is milled or the process generates fines, the fines could form an explosive mixture if dispersed in a sufficient quantity of air.
Minimise use of water to prevent environmental contamination.
Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), sulphur oxides (SOx), hydrogen chloride (HCl), nitrogen oxides (NOx), ammonia (NH3)

Fire fighting equipment

Self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protection recommended in section 8.

Environmental precautions
Minimise spread.
Keep out of drains, sewers, ditches and water ways.
Consult an expert immediately.
Notify authorities.

Methods for cleaning up
Use vacuum equipment designed specifically for combustible dust.
Dig up heavily contaminated soil.
Collect in containers for disposal.
Flush residues with small quantities of water.
Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling
When using do not eat, drink or smoke.
Wash hands thoroughly after handling or contact.
Wash contaminated clothing before re-use.
Thoroughly clean equipment after use.
Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.
Refer to section 13 for disposal of rinse water.
Dust generated during handling and/or storage can form explosive mixtures in air.

Storage
Maximum storage temperature: < 120 °F
Keep out of reach of children.
Keep away from food, drink and animal feed.
Keep only in the original container.
Use appropriate containment to avoid environmental contamination.
Keep container off wet floors.
Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Sulfosulfuron	No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

Engineering controls
No special requirement when used as recommended.

Eye protection
If there is significant potential for contact:
Wear dust goggles.

Skin protection
If repeated or prolonged contact:
Wear chemical resistant gloves.
Applicators and other handlers must wear:
Wear long sleeved shirt, long pants and shoes with socks.

Respiratory protection
No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Whitish
Form:	Granules, (free-flowing)
Flash point:	Not applicable.
Particle size:	> 99.5 % Mesh size 40
Density:	0.54 g/cm3; (pour density)
Solubility:	Water: Soluble
pH:	4.9 @ 20 °C @ 10 g/l
Partition coefficient (log Pow):	< 1 (active ingredient)

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions of handling and storage.

Hazardous decomposition
Thermal decomposition: Hazardous products of combustion: see section 5.

Hazardous polymerization
Does not occur.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product, similar products and on components are summarized below.

Acute oral toxicity
Mouse, LD50 (limit test): > 2,000 mg/kg body weight
FIFRA category III.
Slightly toxic.
No mortality.

Skin irritation
Rabbit, 6 animals, Draize test:
Days to heal: 0
Primary Irritation Index (PII): 0.0/8.0
FIFRA category IV.
No skin irritation.

Eye irritation

Rabbit, 6 animals, OECD 405 test:
Days to heal: 3
Slight irritation.
FIFRA category III.

Similar formulation

Acute dermal toxicity
Rat, LD50: > 5,000 mg/kg body weight
Practically non-toxic.
FIFRA category IV.
No mortality.

Acute inhalation toxicity
Rat, LC50, 4 hours, dust: > 2.6 mg/L
Practically non-toxic.
FIFRA category IV.

Skin sensitization
Guinea pig, maximisation test:
Positive incidence: 0 %

Active ingredient

Mutagenicity
In vitro and in vivo mutagenicity test(s):
Not mutagenic.

Repeated dose toxicity
Rat, oral, 90 days:
NOAEL toxicity: 6,000 mg/kg diet
Other effects: weight loss
Mouse, oral, 90 days:
NOAEL toxicity: > 7,000 mg/kg diet
Other effects: none

Chronic effects/carcinogenicity
Mouse, oral, 18 months:
NOEL tumour: 3,000 mg/kg diet
NOAEL toxicity: 700 mg/kg diet
Tumours: urinary bladder
Target organs/systems: urinary bladder
Other effects: histopathologic effects, blood biochemistry effects
Tumours not relevant to man.
Rat, oral, 22 months:
NOEL tumour: 500 mg/kg diet
NOAEL toxicity: 500 mg/kg diet
Tumours: urinary bladder (carcinoma), urinary bladder (papilloma)
Target organs/systems: urethra, urinary bladder, kidneys
Other effects: organ weight change, histopathologic effects, increased mortality
Tumours not relevant to man.

Toxicity to reproduction/fertility
Rat, oral, 2 generations:
NOAEL toxicity: 5,000 mg/kg diet
NOAEL reproduction: 20,000 mg/kg diet
Target organs/systems in parents: kidneys
Other effects in parents: weight loss, decrease of body weight gain, organ weight change
Target organs/systems in pups: none
Other effects in pups: none

Developmental toxicity/teratogenicity
Rat, oral, 6 - 15 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight/day
NOAEL development: 1,000 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: none
Developmental effects: none
No adverse treatment related effects in offspring.

Rabbit, oral, 7 - 18 days of gestation:
NOAEL toxicity: 1,000 mg/kg body weight/day
NOAEL development: 1,000 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: none
Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product or on similar products are summarized below.

Arthropod toxicity

Honey bee (Apis mellifera):
Oral/contact, 48 hours, LD50: > 26.5 µg/bee

Similar formulation

Aquatic toxicity, fish

Rainbow trout (Oncorhynchus mykiss):
Acute toxicity (limit test), 96 hours, static, LC50: > 97 mg/L
No more than slightly toxic.

Aquatic toxicity, invertebrates

Water flea (Daphnia magna):
Acute toxicity (limit test), 48 hours, static, EC50: > 101 mg/L
Practically non-toxic.

Active ingredient

Aquatic toxicity, algae/aquatic plants

Green algae (Selenastrum capricornutum):
Acute toxicity, 72 hours, static, EC50: 0.4 mg/L
Highly toxic.

Diatom (Navicula pelliculosa):
Acute toxicity (limit test), 120 hours, static, EC50: > 87 mg/L
No more than slightly toxic.

Duckweed (Lemna gibba):
Acute toxicity, 14 days, static, EC50: 1 µg/L
Plant recovers when toxicant is removed.

Myriophyllum spicatum:
Microcosm, 21 days, static, EC50: > 10 µg/L
Plant recovers when toxicant is removed.

Glyceria maxima:
Microcosm, 70 days, static, EC50: > 10 µg/L
Plant recovers when toxicant is removed.

Lagarosiphon major:
Microcosm, 70 days, static, EC50: > 10 µg/L
Plant recovers when toxicant is removed.

Avian toxicity

Bobwhite quail (Colinus virginianus):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Mallard duck (Anas platyrhynchos):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Bobwhite quail (Colinus virginianus):
Acute oral toxicity, LD50: > 2,250 mg/kg body weight
Practically non-toxic.

Mallard duck (Anas platyrhynchos):
Acute oral toxicity, LD50: > 2,250 mg/kg body weight
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (Eisenia foetida):
Acute toxicity (limit test), 14 days, LC50: > 848 mg/kg dry soil

Bioaccumulation

No significant bioaccumulation is expected.

Dissipation

Soil, field:
Half life: 11 - 47 days

Water, aerobic:
Half life: 16 - 20 days

13. DISPOSAL CONSIDERATIONS

Product

Keep out of drains, sewers, ditches and water ways.
Recycle if appropriate facilities/equipment available.
Burn in proper incinerator.
Follow all local/regional/national/international regulations.

Container

See the individual container label for disposal information.
Emptied packages retain product residue and dust.
Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.
Empty packaging completely.
Ensure packaging cannot be reused.
Do NOT re-use containers.
Store for collection by approved waste disposal service.
Recycle if appropriate facilities/equipment available.
Bury in approved landfill.
Follow all local/regional/national/international regulations.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

TSCA Inventory

Exempt

OSHA Hazardous Components

Surfactant(s)

SARA Title III Rules
Section 311/312 Hazard Categories
Immediate
Section 302 Extremely Hazardous Substances
Not applicable.
Section 313 Toxic Chemical(s)
Not applicable.

CERCLA Reportable quantity
Not applicable.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.
Follow all local/regional/national/international regulations.
Please consult supplier if further information is needed.
In this document the British spelling was applied.
This Safety Data Sheet has been prepared following the EU Directive 91/155/EEC as last amended by EU Directive 2001/58/EC.
|| Changes versus previous edition.

	Health	Flammability	Instability	Additional Markings
NFPA	1	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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